

Nanocomposites and nanomaterials

The introduction of fluorescein into the structure of pseudo-poly(amino acids) and study of their colloidal-chemical properties

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Today Nanomedicine is an area rapidly developing in which the polymer components are useful for designing complex devices (theranostics) to ensure the treatment of disease through improved levels of diagnostic visualization. The main advantage theranostics is that they are not limited to treatment or visualization, and allow their combination that gives the coincidence of diagnostic information and delivering therapeutics. Synthesis of amphiphilic polymers with the chromophoric group are the basis for the creation of nano new-generation drug – theranostics. On this basis was developed a number of pseudo-poly(amino acids) polyester type with fluorescent chromophoric fragments in mainly macrochain[1]. The structure obtained copolyesteriv provides their biotolerance and lack of toxic effects of their degradation products on human body. In addition, new amphiphilic copolyesters have surface-active properties and are able to form micellar structures in aqueous environments. Synthesized class pseudo-poly(amino acids) polyester type with fluorescent fragments provides significant solubilisation in water soluble organic compounds to aqueous solutions. Introduction chromophore does not affect the colloid-chemical properties of copolyesteriv and can be seen as a convenient way to visualize areas of accumulation of nanoparticles in vivo. These properties of synthesized copolyesters and their aqueous solutions create conditions for their use as micellar polymeric systems for the transport of therapeutic agents through the parenteral and the possibility of identifying in an organism [2].

1. *Varvarenko S., Voronov S., Puzko N., Samaryk V., Nosova N., Tarnavchik I., Voronov A. Poly(ethylene glycol)-containing pseudo-poly(amino acids) as a novel type of biodegradable functional macromolecules PMSE Preprints (2013-01-01) ISSN: 1550-6703.*
2. *Chekh B. O., Ferens M., Vlizlo V. V. Testing of P-116 based of nano-polymer system containing pseudo polyamino acids. Abstrsctbook for Conference for young scientist 2015, Kyiv, 2015, p. 117.*